



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

November 20, 2019

Greg Milano
SAI Group, LLC
12 Industrial Way
Salem, NH 03079

RE: **EM-CING-014-191112** – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 123 Pine Orchard Road, Branford, Connecticut.

Dear Mr. Milano:

The Connecticut Siting Council (Council) is in receipt of your correspondence of November 18, 2019 submitted in response to the Council's November 15, 2019 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/IN/emr



Robidoux, Evan

From: Greg Milano <gmilano@saigrp.com>
Sent: Monday, November 18, 2019 1:36 PM
To: Robidoux, Evan; CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-CING-014-191112 (123 Pine Orchard Road, Branford)
Attachments: CT1274 (3C-4C) Mount Analysis Rev1 10152019.pdf
Importance: High

Attached is the requested supplement to our exempt mod filing for EM-CING-014-191112 (123 Pine Orchard Road, Branford)

Greg Milano



SAI Group, LLC
12 Industrial Way
Salem, NH 03079
gmilano@saigrp.com
Mobile: 860-707-9001

From: Robidoux, Evan
Sent: Monday, November 18, 2019 12:27 PM
To: Greg Milano
Cc: CSC-DL Siting Council
Subject: Council Incomplete Letter for EM-CING-014-191112 (123 Pine Orchard Road, Branford)

Please see the attached correspondence.

Evan Robidoux
Clerk Typist
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

September 25, 2019
October 15, 2019 (Rev. 1)



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT1274 (LTE 3C/4C)
 FA Number: 10133874
 PACE Number: MRCTB040459
 PT Number: 2101A0PQWB
 Site Name: BRANFORD PINE ORCHARD RD
 Site Address: 123 Pine Orchard Road
 Branford, CT 06405

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) P90-15-XLH-RR Antennas (72.0"x11.0"x7.0" – Wt. = 49 lbs. /each)
- (3) SBNHH-1D65A Antennas (55.6"x11.9"x7.1" - Wt. = 34 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) TT19-08BP1111-001 TMA's (9.9"x6.7"x5.4" - Wt. = 16 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each) (Tower Mount)**
- **(3) B5/B12 4449 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each)**

**Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on September 17, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 128 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.13 in was used for this analysis.
- HDG considers this site to be exposure category D; tower is located on flat, unobstructed, shorelines.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- AT&T policy forbids walking on or suspending below T-arm mounts. This Analysis does not include live load conditions for this mount.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Install new 2" std. (2.38" O.D.) pipe brace secured to existing mount and tower (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing (LTE 3C/4C) Mount Rating	2	LC1	109%	FAIL
Modified (LTE 3C/4C) Mount Rating	2	LC7	72%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.
- Mount design criteria, SitePro1 P/N LWRM dated February 22, 2010.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:







HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

z = 112 (ft)
 z_g = 700 (ft)
 α = 11.5

K_z = 1.461

K_{zmin} ≤ K_z ≤ 2.01

Table 2-4

Exposure	Z _g	α	K _{zmin}	K _c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K _t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_c K_t / K_h)]^2$$

$$K_h = e^{(fz/H)}$$

K_{zt} = #DIV/0!

K_h = #DIV/0!

(If Category 1 then K_{zt} = 1.0)

K_c = 1.1 (from Table 2-4)

K_t = 0 (from Table 2-5)

f = 0 (from Table 2-5)

z = 112

z_s = 40 (Mean elevation of base of structure above sea level)

H = 0 (Ht. of the crest above surrounding terrain)

K_{zt} = 1.00 (from 2.6.6.2.1)

K_e = 1.00 (from 2.6.8)

Category = 1

2.6.10 Design Ice Thickness

Max Ice Thickness =

t_i = 1.00 in

Importance Factor =

I = 1.0 (from Table 2-3)

K_{iz} = 1.13 (from Sec. 2.6.10)

$$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$$

t_{iz} = 1.13 in

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$ h= ht. of structure

h= 125 $G_h = 0.85$

2.6.9.2 Guyed Masts

$G_h = 0.85$

2.6.9.3 Pole Structures

$G_h = 1.1$

2.6.9 Appurtenances

$G_h = 1.0$

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

$G_h = 1.35$ $G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

- $K_z = 1.461$ (from 2.6.5.2)
- $K_{zt} = 1.0$ (from 2.6.6.2.1)
- $K_s = 1.0$ (from 2.6.7)
- $K_e = 1.00$ (from 2.6.8)
- $K_d = 0.95$ (from Table 2-2)
- $V_{max} = 128$ mph (Ultimate Wind Speed)
- $V_{max(ice)} = 50$ mph
- $V_{30} = 30$ mph

$q_z = 58.15$
 $q_z(ice) = 8.87$
 $q_z(30) = 3.19$

Table 2-2

Structure Type	Wind Direction Probability Factor, K_d
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r _s) ≥ 0.85	1.4 - 4.0(r _s) ≥ 0.90	2.0 - 6.0(r _s) ≥ 1.25
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	4.14/(C ^{0.485})	3.66/(C ^{0.415})	46.8/(C ^{1.0})
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance.)

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness =

1.13 in

Angle = 0 (deg)

Equivalent Angle = 180 (deg)

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	6.55	1.38	441	84	24
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	4.67	1.30	346	65	19
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	739	129	41
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	159	31	9
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	136.00	5.70	13	25	1
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	95	20	5
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	0.00	1.20	0	3	0
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	1.83	1.20	26	7	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	66	14	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	14	5	1
2-1/2" Pipe	2.9	12.0		0.24	0.24	1.20	17	5	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	20	6	1
4" Pipe	4.5	12.0		0.38	0.38	1.20	26	7	1
HSS 4x4	4.0	12.0		0.33	0.33	1.25	24	7	1

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 30 (deg) Ice Thickness = 1.13 in. Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	408
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	317
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	636
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	144
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	86	97	88
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	90
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	48	75	55
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	27

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	76
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	59
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	112
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	29
RRUS-32 B2 RRH (Shielded)	29.5	7.2	9.3	1.47	1.89	4.10	3.18	1.27	1.23	17	21	18
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	17.2	7.7	12.7	0.92	1.51	2.22	1.36	1.20	1.20	10	16	11
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	7

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	22
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	35
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	3	4	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = **60** (deg) Ice Thickness = **1.13** in. Equivalent Angle = **240** (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	341
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	257
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	430
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	113
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	122	97	103
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	80
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	71	75	74
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	31

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	66
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	50
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	80
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	23
RRUS-32 B2 RRH (Shielded)	29.5	10.8	9.3	2.20	1.89	2.74	3.18	1.21	1.23	24	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	17.2	11.6	12.7	1.38	1.51	1.48	1.36	1.20	1.20	15	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	19
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	24
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	4	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.13 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	307
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	228
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	327
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	97
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.32	136.00	3.89	5.70	1.26	13	97	97
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	75
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	75	75
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	32

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	61
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	46
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	64
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	21
RRUS-32 B2 RRH (Shielded)	29.5	2.5	9.3	0.50	1.89	11.98	3.18	1.57	1.23	7	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	16
B5/B12 4449 RRH (Shielded)	17.2	2.3	12.7	0.27	1.51	7.59	1.36	1.42	1.20	3	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	17
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	13
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	18
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	5
RRUS-32 B2 RRH (Shielded)	27.2	0.2	7.0	0.04	1.32	136.00	3.89	5.70	1.26	1	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	0.0	10.4	0.00	1.08	0.00	1.43	1.20	1.20	0	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.13 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	341
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	257
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	430
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	113
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	122	97	103
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	80
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	71	75	74
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	31

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	66
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	50
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	80
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	23
RRUS-32 B2 RRH (Shielded)	29.5	10.8	9.3	2.20	1.89	2.74	3.18	1.21	1.23	24	21	21
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	17
B5/B12 4449 RRH (Shielded)	17.2	11.6	12.7	1.38	1.51	1.48	1.36	1.20	1.20	15	16	16
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	8

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	19
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	24
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	6
RRUS-32 B2 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	7	5	6
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	4
B5/B12 4449 RRH (Shielded)	14.9	9.9	10.4	1.02	1.08	1.51	1.43	1.20	1.20	4	4	4
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.13 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	441	307	408
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	346	228	317
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	739	327	636
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	159	97	144
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	86	97	88
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	95	75	90
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	48	75	55
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	26	32	27

WIND LOADS WITH ICE:

P90-15-XLH-RR Antenna	74.3	13.3	9.3	6.84	4.78	5.60	8.02	1.34	1.43	81	61	76
SBNHH-1D65A Antenna	57.9	14.2	9.4	5.69	3.76	4.09	6.18	1.27	1.36	64	46	59
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.71	5.08	3.20	7.38	1.23	1.41	128	64	112
RRUS-32 B2 RRH	29.5	14.4	9.3	2.94	1.89	2.05	3.18	1.20	1.23	31	21	29
RRUS-32 B2 RRH (Shielded)	29.5	7.2	9.3	1.47	1.89	4.10	3.18	1.27	1.23	17	21	18
B5/B12 4449 RRH	17.2	15.5	12.7	1.84	1.51	1.11	1.36	1.20	1.20	20	16	19
B5/B12 4449 RRH (Shielded)	17.2	7.7	12.7	0.92	1.51	2.22	1.36	1.20	1.20	10	16	11
TT19-08BP111-001 TMA	12.2	7.7	9.0	0.65	0.76	1.59	1.36	1.20	1.20	7	8	7

WIND LOADS AT 30 MPH:

P90-15-XLH-RR Antenna	72.0	11.0	7.0	5.50	3.50	6.55	10.29	1.38	1.51	24	17	22
SBNHH-1D65A Antenna	55.6	11.9	7.1	4.59	2.74	4.67	7.83	1.30	1.43	19	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	41	18	35
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	9	5	8
RRUS-32 B2 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	5	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	5	4	5
B5/B12 4449 RRH (Shielded)	14.9	6.6	10.4	0.68	1.08	2.26	1.43	1.20	1.20	3	4	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	2	2

Date: 9/25/2019
 Project Name: BRANFORD PINE ORCHARD RD
 Project No.: CT1274
 Designed By: LBW Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.13 in.
 Density of ice: 56 pcf

P90-15-XLH-RR Antenna

Weight of ice based on total radial SF area:
 Height (in): 72.0
 Width (in): 11.0
 Depth (in): 7.0
 Total weight of ice on object: 117 lbs
 Weight of object: 49.0 lbs
Combined weight of ice and object: 166 lbs

SBNHH-1D65A Antenna

Weight of ice based on total radial SF area:
 Height (in): 55.6
 Width (in): 11.9
 Depth (in): 7.1
 Total weight of ice on object: 96 lbs
 Weight of object: 34.0 lbs
Combined weight of ice and object: 130 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:
 Height (in): 71.2
 Width (in): 20.7
 Depth (in): 7.7
 Total weight of ice on object: 190 lbs
 Weight of object: 80.0 lbs
Combined weight of ice and object: 270 lbs

RRUS-32 B2 RRH

Weight of ice based on total radial SF area:
 Height (in): 27.2
 Width (in): 12.1
 Depth (in): 7.0
 Total weight of ice on object: 47 lbs
 Weight of object: 60.0 lbs
Combined weight of ice and object: 107 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:
 Height (in): 14.9
 Width (in): 13.2
 Depth (in): 10.4
 Total weight of ice on object: 31 lbs
 Weight of object: 73.0 lbs
Combined weight of ice and object: 104 lbs

TT19-08BP111-001 TMA

Weight of ice based on total radial SF area:
 Height (in): 9.9
 Width (in): 5.4
 Depth (in): 6.7
 Total weight of ice on object: 11 lbs
 Weight of object: 16.0 lbs
Combined weight of ice and object: 27 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:
 Depth (in): 24.0
 Diameter(in): 9.7
 Total weight of ice on object: 30 lbs
 Weight of object: 33 lbs
Combined weight of ice and object: 63 lbs

2" pipe

Per foot weight of ice:
 diameter (in): 2.38
Per foot weight of ice on object: 5 plf

3" Pipe

Per foot weight of ice:
 diameter (in): 3.5
Per foot weight of ice on object: 6 plf

2-1/2" pipe

Per foot weight of ice:
 diameter (in): 2.88
Per foot weight of ice on object: 6 plf

4" Pipe

Per foot weight of ice:
 diameter (in): 4.5
Per foot weight of ice on object: 8 plf

HSS 4x4

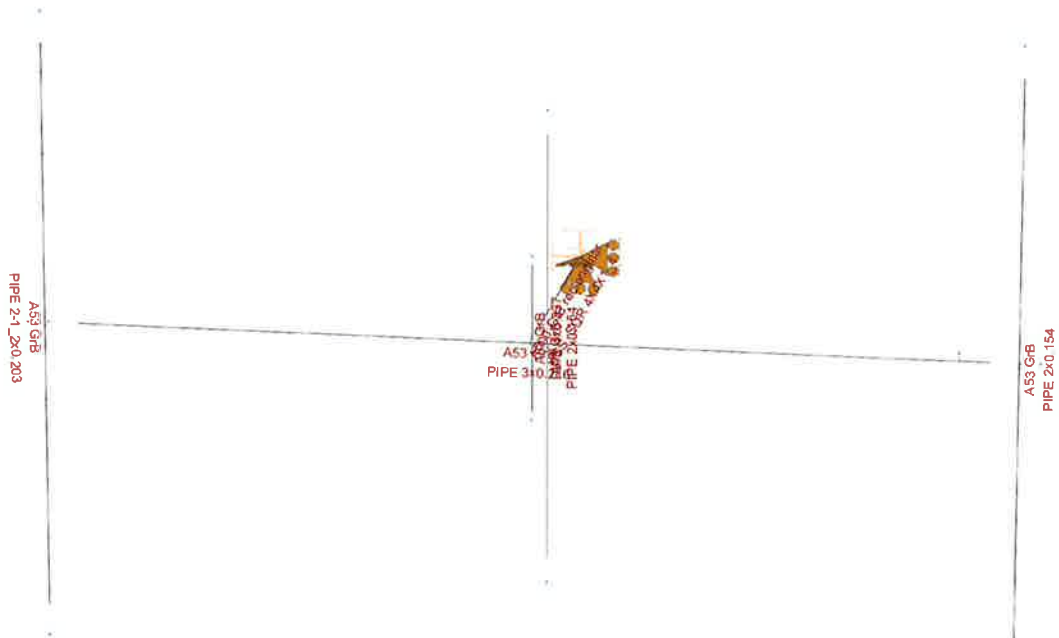
Weight of ice based on total radial SF area:
 Height (in): 4
 Width (in): 4
Per foot weight of ice on object: 9 plf







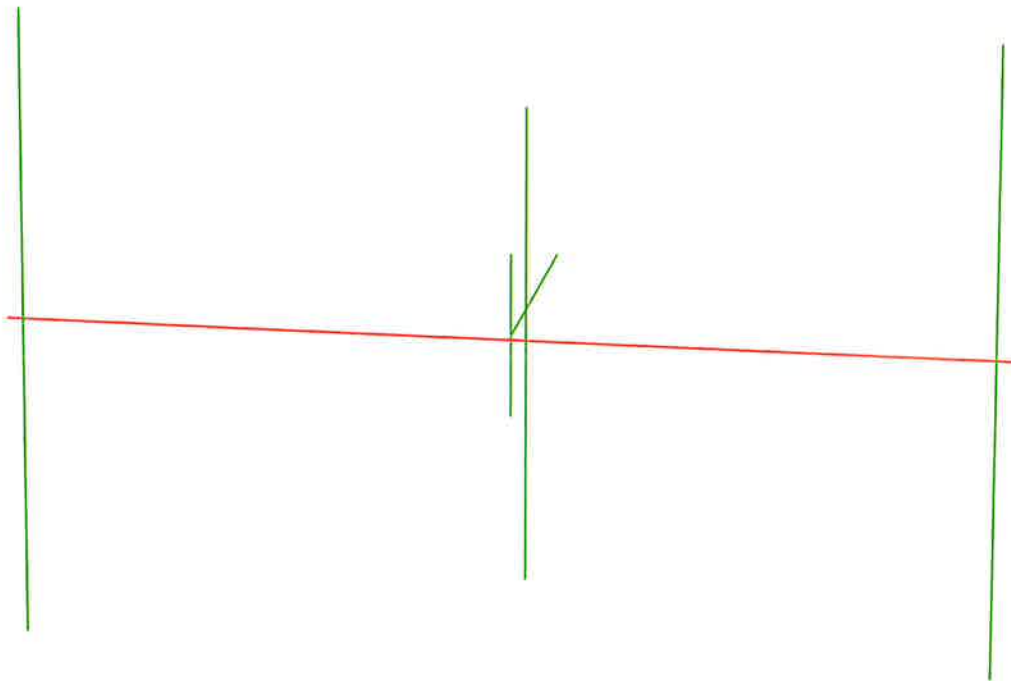
HUDSON
Design Group LLC

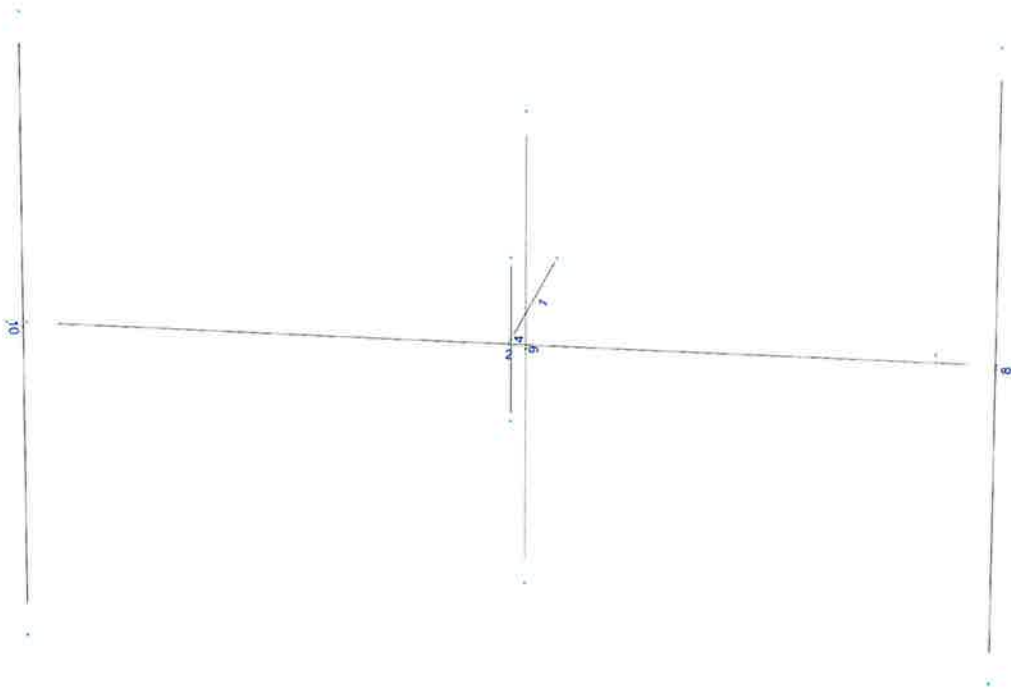
**Mount Calculations
(Existing Conditions)**





-  Not designed
-  Error on design
-  Design O.K.
-  With warnings





Current Date: 9/25/2019 12:17 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1274\LTE 3C-4C\CT1274 (LTE 3C-4C).rct\

Load data

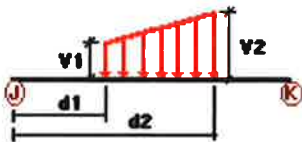
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

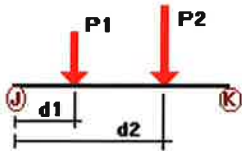
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No <td WIND	
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W30	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W60	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
W90	1	x	-0.024	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
W120	10	x	-0.017	0.00	0.00	No	0.00	No
	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
W150	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
	1	z	0.024	0.00	0.00	No	0.00	No
	2	z	0.02	0.00	0.00	No	0.00	No
	4	z	0.026	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.008	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.006	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%		
D	8	y	-0.025	0.50	No		
		y	-0.025	5.50	No		
		9	y	-0.017	1.00	No	
			y	-0.017	4.50	No	
			y	-0.06	2.00	No	
	10	y	-0.04	0.50	No		
		y	-0.04	5.50	No		
		y	-0.073	2.00	No		
		Wo	8	z	-0.221	0.50	No
				z	-0.221	5.50	No
9	z		-0.174	1.00	No		
	z		-0.174	4.50	No		
		z	-0.013	2.00	No		

	10	z	-0.37	0.50	No
		z	-0.37	5.50	No
W30	8	3	-0.204	0.50	No
		3	-0.204	5.50	No
	9	3	-0.159	1.00	No
		3	-0.159	4.50	No
		3	-0.088	2.00	No
	10	3	-0.318	0.50	No
		3	-0.318	5.50	No
		3	-0.055	2.00	No
W60	8	3	-0.171	0.50	No
		3	-0.171	5.50	No
	9	3	-0.129	1.00	No
		3	-0.129	4.50	No
		3	-0.103	2.00	No
	10	3	-0.215	0.50	No
		3	-0.215	5.50	No
		3	-0.074	2.00	No
W90	8	x	-0.154	0.50	No
		x	-0.154	5.50	No
	9	x	-0.114	1.00	No
		x	-0.114	4.50	No
		x	-0.097	2.00	No
	10	x	-0.164	0.50	No
		x	-0.164	5.50	No
		x	-0.075	2.00	No
W120	8	2	-0.171	0.50	No
		2	-0.171	5.50	No
	9	2	-0.129	1.00	No
		2	-0.129	4.50	No
		2	-0.103	2.00	No
	10	2	-0.215	0.50	No
		2	-0.215	5.50	No
		2	-0.074	2.00	No
W150	8	2	-0.204	0.50	No
		2	-0.204	5.50	No
	9	2	-0.159	1.00	No
		2	-0.159	4.50	No
		2	-0.088	2.00	No
	10	2	-0.318	0.50	No
		2	-0.318	5.50	No
		2	-0.055	2.00	No
Di	8	y	-0.059	0.50	No
		y	-0.059	5.50	No
	9	y	-0.048	1.00	No
		y	-0.048	4.50	No
		y	-0.047	2.00	No
	10	y	-0.095	0.50	No
		y	-0.095	5.50	No
		y	-0.031	2.00	No
WI0	8	z	-0.042	0.50	No
		z	-0.042	5.50	No
	9	z	-0.033	1.00	No
		z	-0.033	4.50	No
		z	-0.025	2.00	No
	10	z	-0.065	0.50	No
		z	-0.065	5.50	No
		z	-0.003	2.00	No
WI30	8	3	-0.039	0.50	No
		3	-0.039	5.50	No

	9	3	-0.03	1.00	No
		3	-0.03	4.50	No
		3	-0.018	2.00	No
	10	3	-0.056	0.50	No
		3	-0.056	5.50	No
		3	-0.011	2.00	No
WI60	8	3	-0.033	0.50	No
		3	-0.033	5.50	No
	9	3	-0.026	1.00	No
		3	-0.026	4.50	No
		3	-0.021	2.00	No
	10	3	-0.04	0.50	No
		3	-0.04	5.50	No
		3	-0.016	2.00	No
WI90	8	x	-0.031	0.50	No
		x	-0.031	5.50	No
	9	x	-0.023	1.00	No
		x	-0.023	4.50	No
		x	-0.021	2.00	No
	10	x	-0.032	0.50	No
		x	-0.032	5.50	No
		x	-0.016	2.00	No
WI120	8	2	-0.033	0.50	No
		2	-0.033	5.50	No
	9	2	-0.026	1.00	No
		2	-0.026	4.50	No
		2	-0.021	2.00	No
	10	2	-0.04	0.50	No
		2	-0.04	5.50	No
		2	-0.016	2.00	No
WI150	8	2	-0.039	0.50	No
		2	-0.039	5.50	No
	9	2	-0.03	1.00	No
		2	-0.03	4.50	No
		2	-0.018	2.00	No
	10	2	-0.056	0.50	No
		2	-0.056	5.50	No
		2	-0.011	2.00	No
WL0	8	z	-0.013	0.50	No
		z	-0.013	5.50	No
	9	z	-0.01	1.00	No
		z	-0.01	4.50	No
		z	-0.001	2.00	No
	10	z	-0.021	0.50	No
		z	-0.021	5.50	No
WL30	8	3	-0.012	0.50	No
		3	-0.012	5.50	No
	9	3	-0.009	1.00	No
		3	-0.009	4.50	No
		3	-0.005	2.00	No
	10	3	-0.018	0.50	No
		3	-0.018	5.50	No
		3	-0.003	2.00	No
WL60	8	3	-0.01	0.50	No
		3	-0.01	5.50	No
	9	3	-0.008	1.00	No
		3	-0.008	4.50	No
		3	-0.006	2.00	No
	10	3	-0.012	0.50	No
		3	-0.012	5.50	No

		3	-0.004	2.00	No
WL90	8	x	-0.009	0.50	No
		x	-0.009	5.50	No
	9	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.005	2.00	No
10	x	-0.009	0.50	No	
	x	-0.009	5.50	No	
	x	-0.004	2.00	No	
WL120	8	2	-0.01	0.50	No
		2	-0.01	5.50	No
	9	2	-0.008	1.00	No
		2	-0.008	4.50	No
		2	-0.006	2.00	No
10	2	-0.012	0.50	No	
	2	-0.012	5.50	No	
	2	-0.004	2.00	No	
WL150	8	2	-0.012	0.50	No
		2	-0.012	5.50	No
	9	2	-0.009	1.00	No
		2	-0.009	4.50	No
		2	-0.005	2.00	No
	10	2	-0.018	0.50	No
		2	-0.018	5.50	No
		2	-0.003	2.00	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

Current Date: 9/25/2019 12:17 PM

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+W10+1.5LLa1
LC42=1.2D+W130+1.5LLa1
LC43=1.2D+W160+1.5LLa1
LC44=1.2D+W190+1.5LLa1
LC45=1.2D+W120+1.5LLa1
LC46=1.2D+W150+1.5LLa1
LC47=1.2D-W10+1.5LLa1
LC48=1.2D-W130+1.5LLa1
LC49=1.2D-W160+1.5LLa1
LC50=1.2D-W190+1.5LLa1
LC51=1.2D-W120+1.5LLa1
LC52=1.2D-W150+1.5LLa1
LC53=1.2D+W10+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	1	LC9 at 0.00%	0.57	OK	
	PIPE 2-1_2x0.203	10	LC1 at 46.88%	0.48	OK	
	PIPE 2x0.154	8	LC1 at 46.88%	0.54	OK	
		9	LC10 at 46.88%	0.26	OK	
	PIPE 3x0.216	2	LC1 at 48.96%	1.09	N.G.	
	PIPE 4x0.237	4	LC1 at 50.00%	0.00	OK	

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	6.25	0.00	3.95	0
4	-6.25	0.00	3.95	0
6	0.00	1.042	3.75	0
7	0.00	-1.042	3.75	0
14	6.00	-4.00	4.15	0
15	0.25	-3.00	4.15	0
16	-6.00	-4.00	4.15	0
17	6.00	4.00	4.15	0
18	0.25	3.00	4.15	0
19	-6.00	4.00	4.15	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	4	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
8	17	14		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	18	15		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	19	16		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00

Orientation of local axes

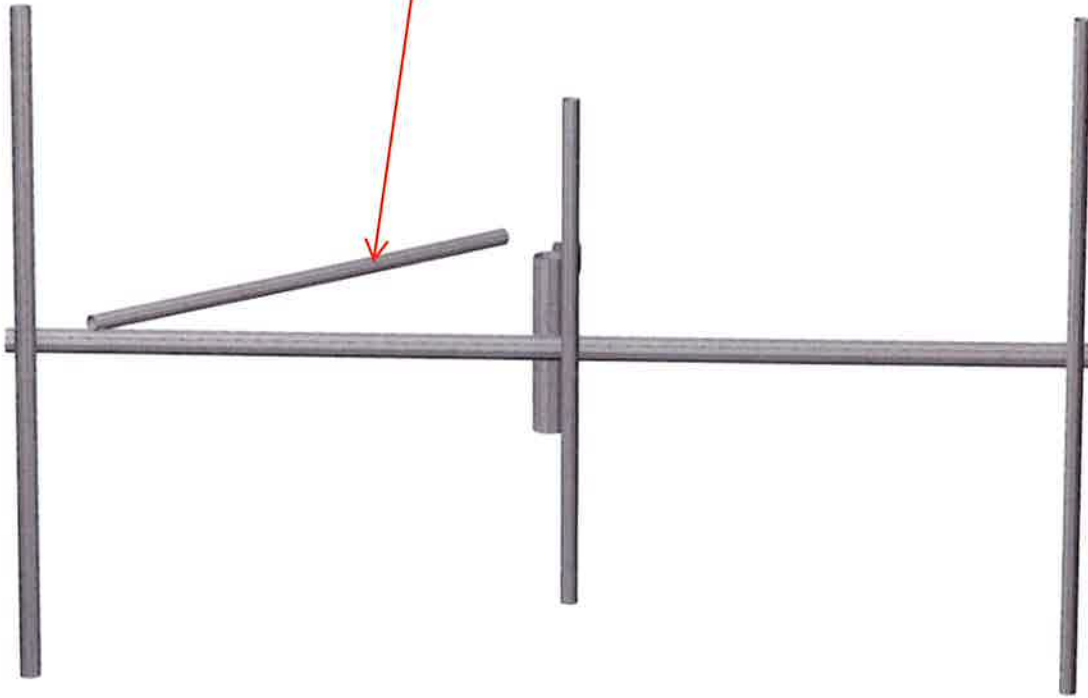
Member	Rotation [Deg]	Axes23	NX	NY	NZ
8	315.00	0	0.00	0.00	0.00
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00

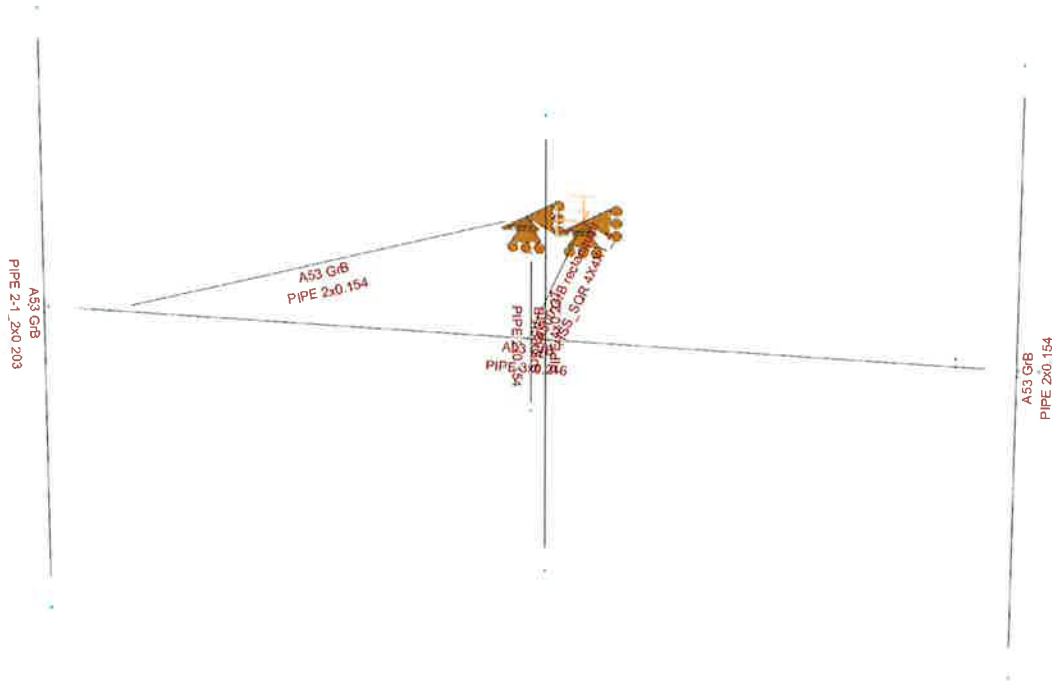






HUDSON
Design Group LLC

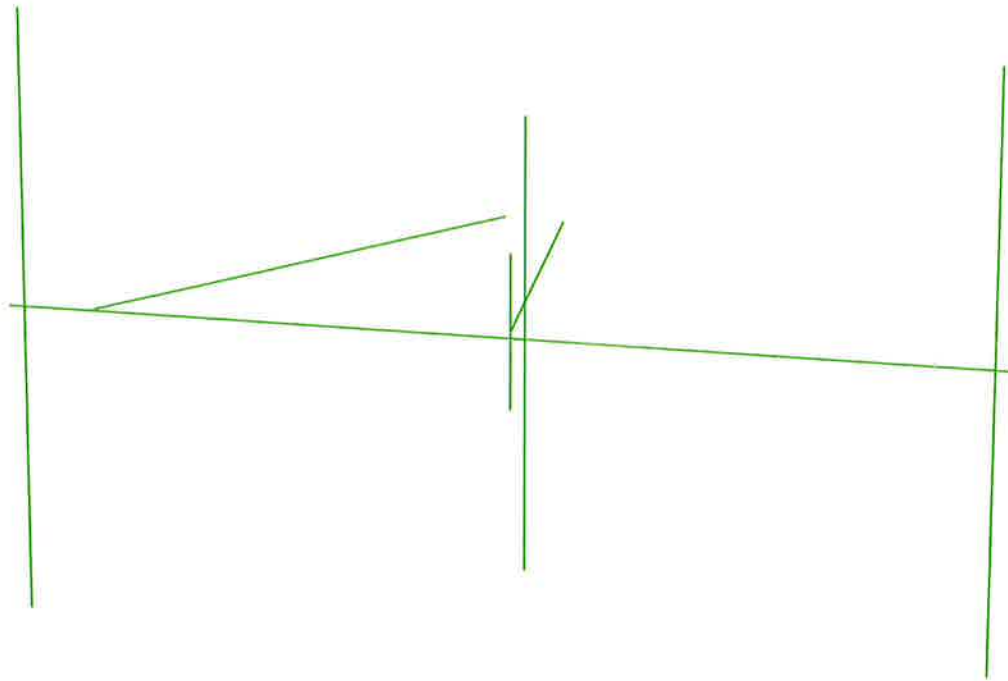
**Mount Calculations
(Modified Conditions)**

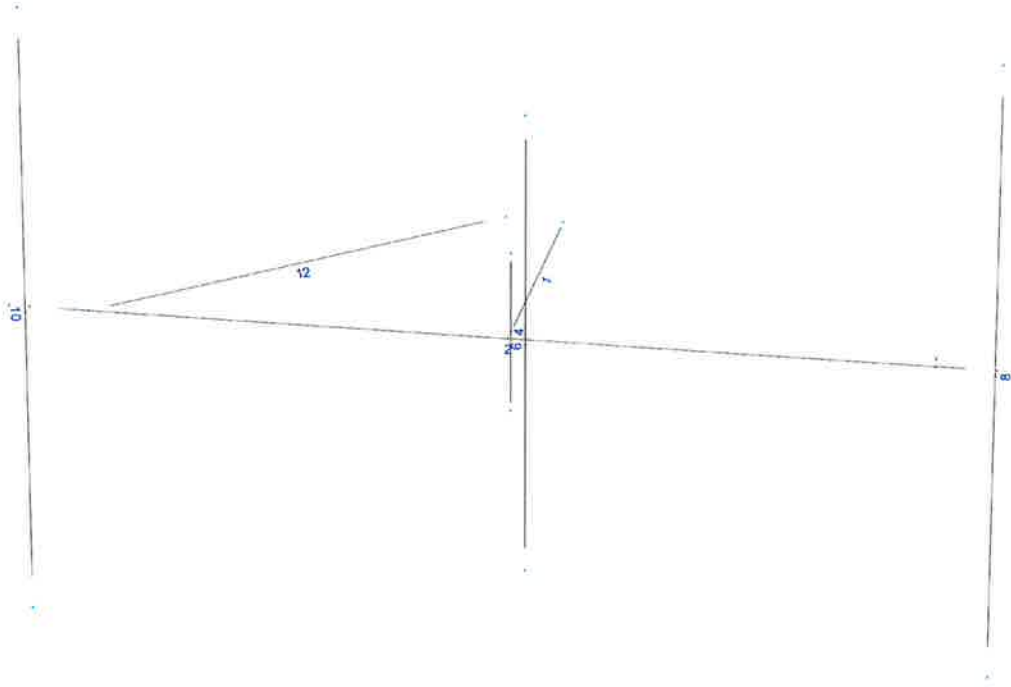
Install new 2" std. (2.38" O.D.) pipe brace secured to existing mount and tower (typ. of 1 per sector, total of 3).





-  Not designed
-  Error on design
-  Design O.K.
-  With warnings





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File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1274\LTE 3C-4C\CT1274 (LTE 3C-4C)(MODS).retx\

Load data

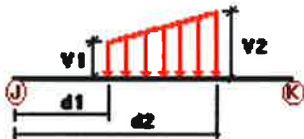
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

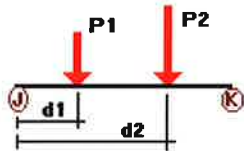
Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No <td WIND	
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL

Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W30	1	z	-0.024	0.00	0.00	No	0.00	No
	2	z	-0.02	0.00	0.00	No	0.00	No
	4	z	-0.026	0.00	0.00	No	0.00	No
W60	1	x	-0.024	0.00	0.00	No	0.00	No
	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
W90	10	x	-0.017	0.00	0.00	No	0.00	No
	1	x	-0.024	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
W120	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
	1	x	-0.024	0.00	0.00	No	0.00	No
W150	2	x	-0.02	0.00	0.00	No	0.00	No
	4	x	-0.026	0.00	0.00	No	0.00	No
	8	x	-0.014	0.00	0.00	No	0.00	No
	9	x	-0.014	0.00	0.00	No	0.00	No
	10	x	-0.017	0.00	0.00	No	0.00	No
Di	1	z	0.024	0.00	0.00	No	0.00	No
	2	z	0.02	0.00	0.00	No	0.00	No
	4	z	0.026	0.00	0.00	No	0.00	No
Di	1	y	-0.009	0.00	0.00	No	0.00	No
	2	y	-0.006	0.00	0.00	No	0.00	No
	4	y	-0.008	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
10	y	-0.006	0.00	0.00	No	0.00	No	

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	8	y	-0.025	0.50	No
		y	-0.025	5.50	No
	9	y	-0.017	1.00	No
		y	-0.017	4.50	No
		y	-0.06	2.00	No
	10	y	-0.04	0.50	No
		y	-0.04	5.50	No
Wo	8	z	-0.073	2.00	No
		z	-0.221	0.50	No
	9	z	-0.221	5.50	No
		z	-0.174	1.00	No
		z	-0.174	4.50	No
10	z	-0.013	2.00	No	

	10	z	-0.37	0.50	No
		z	-0.37	5.50	No
W30	8	3	-0.204	0.50	No
		3	-0.204	5.50	No
	9	3	-0.159	1.00	No
		3	-0.159	4.50	No
		3	-0.088	2.00	No
	10	3	-0.318	0.50	No
		3	-0.318	5.50	No
		3	-0.055	2.00	No
W60	8	3	-0.171	0.50	No
		3	-0.171	5.50	No
	9	3	-0.129	1.00	No
		3	-0.129	4.50	No
		3	-0.103	2.00	No
	10	3	-0.215	0.50	No
		3	-0.215	5.50	No
		3	-0.074	2.00	No
W90	8	x	-0.154	0.50	No
		x	-0.154	5.50	No
	9	x	-0.114	1.00	No
		x	-0.114	4.50	No
		x	-0.097	2.00	No
	10	x	-0.164	0.50	No
		x	-0.164	5.50	No
		x	-0.075	2.00	No
W120	8	2	-0.171	0.50	No
		2	-0.171	5.50	No
	9	2	-0.129	1.00	No
		2	-0.129	4.50	No
		2	-0.103	2.00	No
	10	2	-0.215	0.50	No
		2	-0.215	5.50	No
		2	-0.074	2.00	No
W150	8	2	-0.204	0.50	No
		2	-0.204	5.50	No
	9	2	-0.159	1.00	No
		2	-0.159	4.50	No
		2	-0.088	2.00	No
	10	2	-0.318	0.50	No
		2	-0.318	5.50	No
		2	-0.055	2.00	No
Di	8	y	-0.059	0.50	No
		y	-0.059	5.50	No
	9	y	-0.048	1.00	No
		y	-0.048	4.50	No
		y	-0.047	2.00	No
	10	y	-0.095	0.50	No
		y	-0.095	5.50	No
		y	-0.031	2.00	No
WI0	8	z	-0.042	0.50	No
		z	-0.042	5.50	No
	9	z	-0.033	1.00	No
		z	-0.033	4.50	No
		z	-0.025	2.00	No
	10	z	-0.065	0.50	No
		z	-0.065	5.50	No
		z	-0.003	2.00	No
WI30	8	3	-0.039	0.50	No
		3	-0.039	5.50	No

	9	3	-0.03	1.00	No
		3	-0.03	4.50	No
		3	-0.018	2.00	No
	10	3	-0.056	0.50	No
		3	-0.056	5.50	No
		3	-0.011	2.00	No
WI60	8	3	-0.033	0.50	No
		3	-0.033	5.50	No
	9	3	-0.026	1.00	No
		3	-0.026	4.50	No
		3	-0.021	2.00	No
	10	3	-0.04	0.50	No
		3	-0.04	5.50	No
		3	-0.016	2.00	No
WI90	8	x	-0.031	0.50	No
		x	-0.031	5.50	No
	9	x	-0.023	1.00	No
		x	-0.023	4.50	No
		x	-0.021	2.00	No
	10	x	-0.032	0.50	No
		x	-0.032	5.50	No
		x	-0.016	2.00	No
WI120	8	2	-0.033	0.50	No
		2	-0.033	5.50	No
	9	2	-0.026	1.00	No
		2	-0.026	4.50	No
		2	-0.021	2.00	No
	10	2	-0.04	0.50	No
		2	-0.04	5.50	No
		2	-0.016	2.00	No
WI150	8	2	-0.039	0.50	No
		2	-0.039	5.50	No
	9	2	-0.03	1.00	No
		2	-0.03	4.50	No
		2	-0.018	2.00	No
	10	2	-0.056	0.50	No
		2	-0.056	5.50	No
		2	-0.011	2.00	No
WLO	8	z	-0.013	0.50	No
		z	-0.013	5.50	No
	9	z	-0.01	1.00	No
		z	-0.01	4.50	No
		z	-0.001	2.00	No
	10	z	-0.021	0.50	No
		z	-0.021	5.50	No
WL30	8	3	-0.012	0.50	No
		3	-0.012	5.50	No
	9	3	-0.009	1.00	No
		3	-0.009	4.50	No
		3	-0.005	2.00	No
	10	3	-0.018	0.50	No
		3	-0.018	5.50	No
		3	-0.003	2.00	No
WL60	8	3	-0.01	0.50	No
		3	-0.01	5.50	No
	9	3	-0.008	1.00	No
		3	-0.008	4.50	No
		3	-0.006	2.00	No
	10	3	-0.012	0.50	No
		3	-0.012	5.50	No

WL90	8	3	-0.004	2.00	No
		x	-0.009	0.50	No
		x	-0.009	5.50	No
	9	x	-0.007	1.00	No
		x	-0.007	4.50	No
		x	-0.005	2.00	No
10	x	-0.009	0.50	No	
	x	-0.009	5.50	No	
	x	-0.004	2.00	No	
WL120	8	2	-0.01	0.50	No
		2	-0.01	5.50	No
		2	-0.008	1.00	No
	9	2	-0.008	4.50	No
		2	-0.006	2.00	No
		2	-0.012	0.50	No
10	2	-0.012	5.50	No	
	2	-0.004	2.00	No	
	2	-0.012	0.50	No	
WL150	8	2	-0.012	5.50	No
		2	-0.012	1.00	No
		2	-0.009	4.50	No
	9	2	-0.009	2.00	No
		2	-0.005	0.50	No
		2	-0.018	5.50	No
10	2	-0.018	2.00	No	
	2	-0.003	2.00	No	

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00

Current Date: 9/25/2019 12:18 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1274\LTE 3C-4C\CT1274 (LTE 3C-4C)(MODS).retx\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+W10+1.5LLa1
LC42=1.2D+W130+1.5LLa1
LC43=1.2D+W160+1.5LLa1
LC44=1.2D+W190+1.5LLa1
LC45=1.2D+W120+1.5LLa1
LC46=1.2D+W150+1.5LLa1
LC47=1.2D-W10+1.5LLa1
LC48=1.2D-W130+1.5LLa1
LC49=1.2D-W160+1.5LLa1
LC50=1.2D-W190+1.5LLa1
LC51=1.2D-W120+1.5LLa1
LC52=1.2D-W150+1.5LLa1
LC53=1.2D+W10+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	1	LC9 at 0.00%	0.55	OK	
	PIPE 2-1_2x0.203	10	LC1 at 46.88%	0.48	OK	
	PIPE 2x0.154	8	LC1 at 46.88%	0.54	OK	
		9	LC10 at 46.88%	0.26	OK	
		12	LC7 at 0.00%	0.40	OK	
	PIPE 3x0.216	2	LC1 at 50.00%	0.72	OK	
	PIPE 4x0.237	4	LC1 at 50.00%	0.00	OK	

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
3	6.25	0.00	3.95	0
4	-6.25	0.00	3.95	0
6	0.00	1.042	3.75	0
7	0.00	-1.042	3.75	0
14	6.00	-4.00	4.15	0
15	0.25	-3.00	4.15	0
16	-6.00	-4.00	4.15	0
17	6.00	4.00	4.15	0
18	0.25	3.00	4.15	0
19	-6.00	4.00	4.15	0
22	-5.25	0.00	3.95	0
23	-0.75	0.00	-0.05	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
23	1	1	1	0	0	0

Members

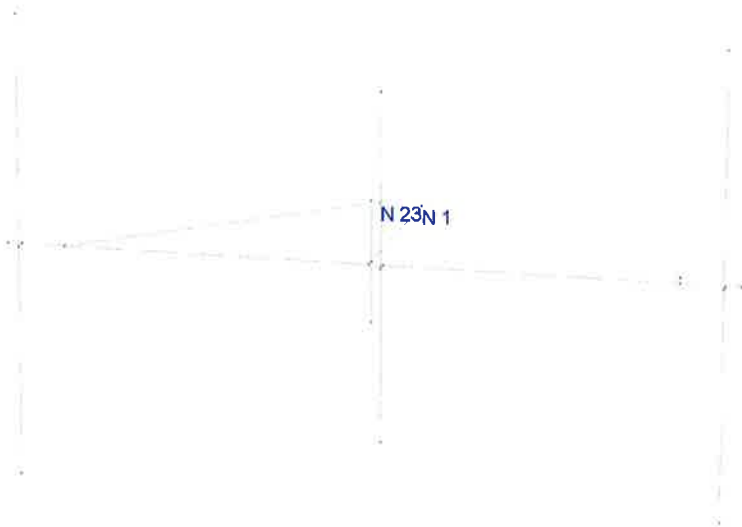
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	4	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	6	7		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
8	17	14		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
9	18	15		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	19	16		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
12	22	23		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axis23	NX	NY	NZ
8	315.00	0	0.00	0.00	0.00
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00

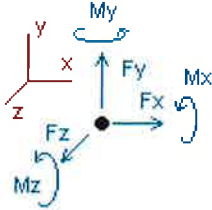
Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
12	0.00	2.50	0.00	0.00	2.50	0.00



Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip]			Moments [Kip*ft]		
	FX	FY	FZ	MX	MY	MZ
Condition LC1=1.2D+W0						
1	0.65532	0.60557	1.33902	-1.40811	1.12786	-0.72211
23	-0.65532	0.09129	0.53416	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	1.87318	-1.40811	1.12786	-0.72211
Condition LC2=1.2D+W30						
1	1.59922	0.63191	0.91830	-1.75435	4.99008	-1.67631
23	-0.55411	0.06494	0.46917	0.00000	0.00000	0.00000
SUM	1.04510	0.69686	1.38747	-1.75435	4.99008	-1.67631
Condition LC3=1.2D+W60						
1	1.70374	0.64767	0.53668	-1.91902	5.43966	-1.52266
23	-0.39600	0.04919	0.33872	0.00000	0.00000	0.00000
SUM	1.30774	0.69686	0.87540	-1.91902	5.43966	-1.52266
Condition LC4=1.2D+W90						
1	1.69192	0.69715	-0.14513	-2.68553	6.05931	-1.73079
23	-0.14774	-0.00029	0.14513	0.00000	0.00000	0.00000
SUM	1.54418	0.69686	0.00000	-2.68553	6.05931	-1.73079
Condition LC5=1.2D+W120						
1	1.16242	0.74855	-0.78190	-3.45194	4.77406	-1.59833
23	0.14532	-0.05170	-0.09349	0.00000	0.00000	0.00000
SUM	1.30774	0.69686	-0.87540	-3.45194	4.77406	-1.59833
Condition LC6=1.2D+W150						
1	0.71000	0.76797	-1.13063	-3.61643	3.52172	-1.77835
23	0.33510	-0.07111	-0.25684	0.00000	0.00000	0.00000
SUM	1.04510	0.69686	-1.38747	-3.61643	3.52172	-1.77835

Condition LC7=1.2D-Wo						
1	-0.66138	0.79811	-1.33226	-3.96248	-1.12249	-0.86651
23	0.66138	-0.10125	-0.54092	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	-1.87318	-3.96248	-1.12249	-0.86651
Condition LC8=1.2D-W30						
1	-1.60528	0.77176	-0.91154	-3.61624	-4.98471	0.08769
23	0.56017	-0.07491	-0.47593	0.00000	0.00000	0.00000
SUM	-1.04510	0.69686	-1.38747	-3.61624	-4.98471	0.08769
Condition LC9=1.2D-W60						
1	-1.70980	0.75601	-0.52992	-3.45156	-5.43429	-0.06596
23	0.40206	-0.05915	-0.34548	0.00000	0.00000	0.00000
SUM	-1.30774	0.69686	-0.87540	-3.45156	-5.43429	-0.06596
Condition LC10=1.2D-W90						
1	-1.69798	0.70653	0.15189	-2.68506	-6.05393	0.14217
23	0.15380	-0.00967	-0.15189	0.00000	0.00000	0.00000
SUM	-1.54418	0.69686	0.00000	-2.68506	-6.05393	0.14217
Condition LC11=1.2D-W120						
1	-1.16848	0.65512	0.78866	-1.91865	-4.76869	0.00971
23	-0.13926	0.04173	0.08673	0.00000	0.00000	0.00000
SUM	-1.30774	0.69686	0.87540	-1.91865	-4.76869	0.00971
Condition LC12=1.2D-W150						
1	-0.71606	0.63571	1.13739	-1.75416	-3.51635	0.18973
23	-0.32904	0.06115	0.25008	0.00000	0.00000	0.00000
SUM	-1.04510	0.69686	1.38747	-1.75416	-3.51635	0.18973
Condition LC13=0.9D+Wo						
1	0.65607	0.43011	1.33818	-0.73678	1.12719	-0.52353
23	-0.65607	0.09253	0.53501	0.00000	0.00000	0.00000
SUM	0.00000	0.52264	1.87318	-0.73678	1.12719	-0.52353
Condition LC14=0.9D+W30						
1	1.59997	0.45646	0.91745	-1.08302	4.98941	-1.47773
23	-0.55487	0.06619	0.47002	0.00000	0.00000	0.00000
SUM	1.04510	0.52264	1.38747	-1.08302	4.98941	-1.47773
Condition LC15=0.9D+W60						
1	1.70450	0.47221	0.53584	-1.24770	5.43899	-1.32408
23	-0.39676	0.05043	0.33956	0.00000	0.00000	0.00000
SUM	1.30774	0.52264	0.87540	-1.24770	5.43899	-1.32408
Condition LC16=0.9D+W90						
1	1.69268	0.52169	-0.14597	-2.01420	6.05864	-1.53221
23	-0.14850	0.00096	0.14597	0.00000	0.00000	0.00000
SUM	1.54418	0.52264	0.00000	-2.01420	6.05864	-1.53221

Condition LC17=0.9D+W120						
1	1.16318	0.57309	-0.78275	-2.78061	4.77339	-1.39975
23	0.14457	-0.05045	-0.09265	0.00000	0.00000	0.00000
SUM	1.30774	0.52264	-0.87540	-2.78061	4.77339	-1.39975
Condition LC18=0.9D+W150						
1	0.71076	0.59251	-1.13148	-2.94510	3.52105	-1.57977
23	0.33434	-0.06987	-0.25599	0.00000	0.00000	0.00000
SUM	1.04510	0.52264	-1.38747	-2.94510	3.52105	-1.57977
Condition LC19=0.9D-W0						
1	-0.66062	0.62265	-1.33311	-3.29116	-1.12316	-0.66793
23	0.66062	-0.10000	-0.54008	0.00000	0.00000	0.00000
SUM	0.00000	0.52264	-1.87318	-3.29116	-1.12316	-0.66793
Condition LC20=0.9D-W30						
1	-1.60452	0.59630	-0.91238	-2.94491	-4.98538	0.28627
23	0.55942	-0.07366	-0.47509	0.00000	0.00000	0.00000
SUM	-1.04510	0.52264	-1.38747	-2.94491	-4.98538	0.28627
Condition LC21=0.9D-W60						
1	-1.70904	0.58055	-0.53077	-2.78024	-5.43496	0.13262
23	0.40130	-0.05791	-0.34463	0.00000	0.00000	0.00000
SUM	-1.30774	0.52264	-0.87540	-2.78024	-5.43496	0.13262
Condition LC22=0.9D-W90						
1	-1.69723	0.53107	0.15104	-2.01373	-6.05461	0.34075
23	0.15304	-0.00843	-0.15104	0.00000	0.00000	0.00000
SUM	-1.54418	0.52264	0.00000	-2.01373	-6.05461	0.34075
Condition LC23=0.9D-W120						
1	-1.16772	0.47966	0.78782	-1.24733	-4.76936	0.20828
23	-0.14002	0.04298	0.08758	0.00000	0.00000	0.00000
SUM	-1.30774	0.52264	0.87540	-1.24733	-4.76936	0.20828
Condition LC24=0.9D-W150						
1	-0.71530	0.46025	1.13655	-1.08283	-3.51702	0.38831
23	-0.32980	0.06239	0.25092	0.00000	0.00000	0.00000
SUM	-1.04510	0.52264	1.38747	-1.08283	-3.51702	0.38831
Condition LC25=1.2D+Di+W10						
1	0.10047	1.30131	0.23581	-4.82719	0.17009	-1.31710
23	-0.10047	-0.00271	0.07919	0.00000	0.00000	0.00000
SUM	0.00000	1.29861	0.31500	-4.82719	0.17009	-1.31710
Condition LC26=1.2D+Di+W130						
1	0.27622	1.30667	0.13303	-4.91518	0.89422	-1.49437
23	-0.08389	-0.00807	0.06920	0.00000	0.00000	0.00000
SUM	0.19233	1.29861	0.20223	-4.91518	0.89422	-1.49437

Condition LC27=1.2D+Di+WI60						
1	0.22099	1.30892	0.12283	-4.93840	0.71217	-1.47272
23	-0.06048	-0.01032	0.04899	0.00000	0.00000	0.00000
SUM	0.16051	1.29861	0.17183	-4.93840	0.71217	-1.47272
Condition LC28=1.2D+Di+WI90						
1	0.23298	1.31838	-0.01486	-5.08783	0.88701	-1.52040
23	-0.01598	-0.01977	0.01486	0.00000	0.00000	0.00000
SUM	0.21700	1.29861	0.00000	-5.08783	0.88701	-1.52040
Condition LC29=1.2D+Di+WI120						
1	0.12128	1.32828	-0.14182	-5.23725	0.60706	-1.48723
23	0.03923	-0.02967	-0.03001	0.00000	0.00000	0.00000
SUM	0.16051	1.29861	-0.17183	-5.23725	0.60706	-1.48723
Condition LC30=1.2D+Di+WI150						
1	0.13667	1.33046	-0.15870	-5.26047	0.68346	-1.51221
23	0.05566	-0.03186	-0.04353	0.00000	0.00000	0.00000
SUM	0.19233	1.29861	-0.20223	-5.26047	0.68346	-1.51221
Condition LC31=1.2D+Di-WI0						
1	-0.11363	1.33663	-0.22113	-5.34842	-0.15842	-1.34359
23	0.11363	-0.03802	-0.09387	0.00000	0.00000	0.00000
SUM	0.00000	1.29861	-0.31500	-5.34842	-0.15842	-1.34359
Condition LC32=1.2D+Di-WI30						
1	-0.28938	1.33127	-0.11835	-5.26043	-0.88255	-1.16633
23	0.09705	-0.03266	-0.08389	0.00000	0.00000	0.00000
SUM	-0.19233	1.29861	-0.20223	-5.26043	-0.88255	-1.16633
Condition LC33=1.2D+Di-WI60						
1	-0.23416	1.32902	-0.10815	-5.23721	-0.70050	-1.18798
23	0.07364	-0.03041	-0.06367	0.00000	0.00000	0.00000
SUM	-0.16051	1.29861	-0.17183	-5.23721	-0.70050	-1.18798
Condition LC34=1.2D+Di-WI90						
1	-0.24614	1.31956	0.02954	-5.08777	-0.87534	-1.14029
23	0.02914	-0.02096	-0.02954	0.00000	0.00000	0.00000
SUM	-0.21700	1.29861	0.00000	-5.08777	-0.87534	-1.14029
Condition LC35=1.2D+Di-WI120						
1	-0.13445	1.30966	0.15650	-4.93836	-0.59539	-1.17346
23	-0.02607	-0.01106	0.01533	0.00000	0.00000	0.00000
SUM	-0.16051	1.29861	0.17183	-4.93836	-0.59539	-1.17346
Condition LC36=1.2D+Di-WI150						
1	-0.14983	1.30748	0.17338	-4.91514	-0.67179	-1.14849
23	-0.04250	-0.00887	0.02885	0.00000	0.00000	0.00000
SUM	-0.19233	1.29861	0.20223	-4.91514	-0.67179	-1.14849

Condition LC38=1.2D+1.5LL1						
1	-0.00303	0.70184	0.00338	-2.68529	0.00269	-0.79431
23	0.00303	-0.00498	-0.00338	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.00000	-2.68529	0.00269	-0.79431
Condition LC39=1.2D+1.5LL2						
1	-0.00303	0.70184	0.00338	-2.68529	0.00269	-0.79431
23	0.00303	-0.00498	-0.00338	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.00000	-2.68529	0.00269	-0.79431
Condition LC40=1.2D+1.5LL3						
1	-0.00303	0.70184	0.00338	-2.68529	0.00269	-0.79431
23	0.00303	-0.00498	-0.00338	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.00000	-2.68529	0.00269	-0.79431
Condition LC41=1.2D+WL0+1.5LLa1						
1	0.03235	0.69643	0.06452	-2.61156	0.06477	-0.79026
23	-0.03235	0.00042	0.02548	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.09000	-2.61156	0.06477	-0.79026
Condition LC42=1.2D+WL30+1.5LLa1						
1	0.08548	0.69798	0.04092	-2.63210	0.28165	-0.84480
23	-0.02609	-0.00112	0.02130	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	0.06223	-2.63210	0.28165	-0.84480
Condition LC43=1.2D+WL60+1.5LLa1						
1	0.06443	0.69893	0.03803	-2.64160	0.21198	-0.83597
23	-0.01635	-0.00207	0.01288	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	0.05091	-2.64160	0.21198	-0.83597
Condition LC44=1.2D+WL90+1.5LLa1						
1	0.06431	0.70166	-0.00286	-2.68530	0.25044	-0.84668
23	-0.00331	-0.00480	0.00286	0.00000	0.00000	0.00000
SUM	0.06100	0.69686	0.00000	-2.68530	0.25044	-0.84668
Condition LC45=1.2D+WL120+1.5LLa1						
1	0.03595	0.70450	-0.04134	-2.72900	0.18499	-0.84015
23	0.01213	-0.00764	-0.00958	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	-0.05091	-2.72900	0.18499	-0.84015
Condition LC46=1.2D+WL150+1.5LLa1						
1	0.04006	0.70547	-0.04663	-2.73850	0.20729	-0.85042
23	0.01934	-0.00861	-0.01559	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	-0.06223	-2.73850	0.20729	-0.85042
Condition LC47=1.2D-WL0+1.5LLa1						
1	-0.03841	0.70724	-0.05776	-2.75902	-0.05940	-0.79836
23	0.03841	-0.01039	-0.03224	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	-0.09000	-2.75902	-0.05940	-0.79836

Condition LC48=1.2D-WL30+1.5LLa1						
1	-0.09154	0.70570	-0.03416	-2.73849	-0.27627	-0.74382
23	0.03215	-0.00884	-0.02806	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	-0.06223	-2.73849	-0.27627	-0.74382
Condition LC49=1.2D-WL60+1.5LLa1						
1	-0.07049	0.70475	-0.03127	-2.72899	-0.20661	-0.75265
23	0.02241	-0.00789	-0.01964	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	-0.05091	-2.72899	-0.20661	-0.75265
Condition LC50=1.2D-WL90+1.5LLa1						
1	-0.07037	0.70202	0.00962	-2.68528	-0.24506	-0.74194
23	0.00937	-0.00516	-0.00962	0.00000	0.00000	0.00000
SUM	-0.06100	0.69686	0.00000	-2.68528	-0.24506	-0.74194
Condition LC51=1.2D-WL120+1.5LLa1						
1	-0.04201	0.69918	0.04810	-2.64159	-0.17962	-0.74847
23	-0.00607	-0.00232	0.00282	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	0.05091	-2.64159	-0.17962	-0.74847
Condition LC52=1.2D-WL150+1.5LLa1						
1	-0.04612	0.69821	0.05339	-2.63209	-0.20192	-0.73820
23	-0.01328	-0.00135	0.00883	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	0.06223	-2.63209	-0.20192	-0.73820
Condition LC53=1.2D+WL0+1.5LLa2						
1	0.03235	0.69643	0.06452	-2.61156	0.06477	-0.79026
23	-0.03235	0.00042	0.02548	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.09000	-2.61156	0.06477	-0.79026
Condition LC54=1.2D+WL30+1.5LLa2						
1	0.08548	0.69798	0.04092	-2.63210	0.28165	-0.84480
23	-0.02609	-0.00112	0.02130	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	0.06223	-2.63210	0.28165	-0.84480
Condition LC55=1.2D+WL60+1.5LLa2						
1	0.06443	0.69893	0.03803	-2.64160	0.21198	-0.83597
23	-0.01635	-0.00207	0.01288	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	0.05091	-2.64160	0.21198	-0.83597
Condition LC56=1.2D+WL90+1.5LLa2						
1	0.06431	0.70166	-0.00286	-2.68530	0.25044	-0.84668
23	-0.00331	-0.00480	0.00286	0.00000	0.00000	0.00000
SUM	0.06100	0.69686	0.00000	-2.68530	0.25044	-0.84668
Condition LC57=1.2D+WL120+1.5LLa2						
1	0.03595	0.70450	-0.04134	-2.72900	0.18499	-0.84015
23	0.01213	-0.00764	-0.00958	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	-0.05091	-2.72900	0.18499	-0.84015

Condition LC58=1.2D+WL150+1.5LLa2						
1	0.04006	0.70547	-0.04663	-2.73850	0.20729	-0.85042
23	0.01934	-0.00861	-0.01559	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	-0.06223	-2.73850	0.20729	-0.85042
Condition LC59=1.2D-WL0+1.5LLa2						
1	-0.03841	0.70724	-0.05776	-2.75902	-0.05940	-0.79836
23	0.03841	-0.01039	-0.03224	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	-0.09000	-2.75902	-0.05940	-0.79836
Condition LC60=1.2D-WL30+1.5LLa2						
1	-0.09154	0.70570	-0.03416	-2.73849	-0.27627	-0.74382
23	0.03215	-0.00884	-0.02806	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	-0.06223	-2.73849	-0.27627	-0.74382
Condition LC61=1.2D-WL60+1.5LLa2						
1	-0.07049	0.70475	-0.03127	-2.72899	-0.20661	-0.75265
23	0.02241	-0.00789	-0.01964	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	-0.05091	-2.72899	-0.20661	-0.75265
Condition LC62=1.2D-WL90+1.5LLa2						
1	-0.07037	0.70202	0.00962	-2.68528	-0.24506	-0.74194
23	0.00937	-0.00516	-0.00962	0.00000	0.00000	0.00000
SUM	-0.06100	0.69686	0.00000	-2.68528	-0.24506	-0.74194
Condition LC63=1.2D-WL120+1.5LLa2						
1	-0.04201	0.69918	0.04810	-2.64159	-0.17962	-0.74847
23	-0.00607	-0.00232	0.00282	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	0.05091	-2.64159	-0.17962	-0.74847
Condition LC64=1.2D-WL150+1.5LLa2						
1	-0.04612	0.69821	0.05339	-2.63209	-0.20192	-0.73820
23	-0.01328	-0.00135	0.00883	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	0.06223	-2.63209	-0.20192	-0.73820
Condition LC65=1.2D+WL0+1.5LLa3						
1	0.03235	0.69643	0.06452	-2.61156	0.06477	-0.79026
23	-0.03235	0.00042	0.02548	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.09000	-2.61156	0.06477	-0.79026
Condition LC66=1.2D+WL30+1.5LLa3						
1	0.08548	0.69798	0.04092	-2.63210	0.28165	-0.84480
23	-0.02609	-0.00112	0.02130	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	0.06223	-2.63210	0.28165	-0.84480
Condition LC67=1.2D+WL60+1.5LLa3						
1	0.06443	0.69893	0.03803	-2.64160	0.21198	-0.83597
23	-0.01635	-0.00207	0.01288	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	0.05091	-2.64160	0.21198	-0.83597

Condition **LC68=1.2D+WL90+1.5LLa3**

1	0.06431	0.70166	-0.00286	-2.68530	0.25044	-0.84668
23	-0.00331	-0.00480	0.00286	0.00000	0.00000	0.00000
SUM	0.06100	0.69686	0.00000	-2.68530	0.25044	-0.84668

Condition **LC69=1.2D+WL120+1.5LLa3**

1	0.03595	0.70450	-0.04134	-2.72900	0.18499	-0.84015
23	0.01213	-0.00764	-0.00958	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	-0.05091	-2.72900	0.18499	-0.84015

Condition **LC70=1.2D+WL150+1.5LLa3**

1	0.04006	0.70547	-0.04663	-2.73850	0.20729	-0.85042
23	0.01934	-0.00861	-0.01559	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	-0.06223	-2.73850	0.20729	-0.85042

Condition **LC71=1.2D-WL0+1.5LLa3**

1	-0.03841	0.70724	-0.05776	-2.75902	-0.05940	-0.79836
23	0.03841	-0.01039	-0.03224	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	-0.09000	-2.75902	-0.05940	-0.79836

Condition **LC72=1.2D-WL30+1.5LLa3**

1	-0.09154	0.70570	-0.03416	-2.73849	-0.27627	-0.74382
23	0.03215	-0.00884	-0.02806	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	-0.06223	-2.73849	-0.27627	-0.74382

Condition **LC73=1.2D-WL60+1.5LLa3**

1	-0.07049	0.70475	-0.03127	-2.72899	-0.20661	-0.75265
23	0.02241	-0.00789	-0.01964	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	-0.05091	-2.72899	-0.20661	-0.75265

Condition **LC74=1.2D-WL90+1.5LLa3**

1	-0.07037	0.70202	0.00962	-2.68528	-0.24506	-0.74194
23	0.00937	-0.00516	-0.00962	0.00000	0.00000	0.00000
SUM	-0.06100	0.69686	0.00000	-2.68528	-0.24506	-0.74194

Condition **LC75=1.2D-WL120+1.5LLa3**

1	-0.04201	0.69918	0.04810	-2.64159	-0.17962	-0.74847
23	-0.00607	-0.00232	0.00282	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	0.05091	-2.64159	-0.17962	-0.74847

Condition **LC76=1.2D-WL150+1.5LLa3**

1	-0.04612	0.69821	0.05339	-2.63209	-0.20192	-0.73820
23	-0.01328	-0.00135	0.00883	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	0.06223	-2.63209	-0.20192	-0.73820

Condition **LC77=1.2D+WL0+1.5LLa4**

1	0.03235	0.69643	0.06452	-2.61156	0.06477	-0.79026
23	-0.03235	0.00042	0.02548	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	0.09000	-2.61156	0.06477	-0.79026

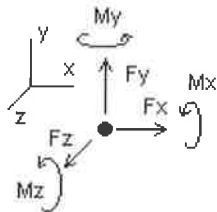
Condition LC78=1.2D+WL30+1.5LLa4						
1	0.08548	0.69798	0.04092	-2.63210	0.28165	-0.84480
23	-0.02609	-0.00112	0.02130	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	0.06223	-2.63210	0.28165	-0.84480
Condition LC79=1.2D+WL60+1.5LLa4						
1	0.06443	0.69893	0.03803	-2.64160	0.21198	-0.83597
23	-0.01635	-0.00207	0.01288	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	0.05091	-2.64160	0.21198	-0.83597
Condition LC80=1.2D+WL90+1.5LLa4						
1	0.06431	0.70166	-0.00286	-2.68530	0.25044	-0.84668
23	-0.00331	-0.00480	0.00286	0.00000	0.00000	0.00000
SUM	0.06100	0.69686	0.00000	-2.68530	0.25044	-0.84668
Condition LC81=1.2D+WL120+1.5LLa4						
1	0.03595	0.70450	-0.04134	-2.72900	0.18499	-0.84015
23	0.01213	-0.00764	-0.00958	0.00000	0.00000	0.00000
SUM	0.04808	0.69686	-0.05091	-2.72900	0.18499	-0.84015
Condition LC82=1.2D+WL150+1.5LLa4						
1	0.04006	0.70547	-0.04663	-2.73850	0.20729	-0.85042
23	0.01934	-0.00861	-0.01559	0.00000	0.00000	0.00000
SUM	0.05940	0.69686	-0.06223	-2.73850	0.20729	-0.85042
Condition LC83=1.2D-WL0+1.5LLa4						
1	-0.03841	0.70724	-0.05776	-2.75902	-0.05940	-0.79836
23	0.03841	-0.01039	-0.03224	0.00000	0.00000	0.00000
SUM	0.00000	0.69686	-0.09000	-2.75902	-0.05940	-0.79836
Condition LC84=1.2D-WL30+1.5LLa4						
1	-0.09154	0.70570	-0.03416	-2.73849	-0.27627	-0.74382
23	0.03215	-0.00884	-0.02806	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	-0.06223	-2.73849	-0.27627	-0.74382
Condition LC85=1.2D-WL60+1.5LLa4						
1	-0.07049	0.70475	-0.03127	-2.72899	-0.20661	-0.75265
23	0.02241	-0.00789	-0.01964	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	-0.05091	-2.72899	-0.20661	-0.75265
Condition LC86=1.2D-WL90+1.5LLa4						
1	-0.07037	0.70202	0.00962	-2.68528	-0.24506	-0.74194
23	0.00937	-0.00516	-0.00962	0.00000	0.00000	0.00000
SUM	-0.06100	0.69686	0.00000	-2.68528	-0.24506	-0.74194
Condition LC87=1.2D-WL120+1.5LLa4						
1	-0.04201	0.69918	0.04810	-2.64159	-0.17962	-0.74847
23	-0.00607	-0.00232	0.00282	0.00000	0.00000	0.00000
SUM	-0.04808	0.69686	0.05091	-2.64159	-0.17962	-0.74847

Condition **LC88=1.2D-WL150+1.5LLa4**

1	-0.04612	0.69821	0.05339	-2.63209	-0.20192	-0.73820
23	-0.01328	-0.00135	0.00883	0.00000	0.00000	0.00000
SUM	-0.05940	0.69686	0.06223	-2.63209	-0.20192	-0.73820

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

- LC1=1.2D+Wo
- LC2=1.2D+W30
- LC3=1.2D+W60
- LC4=1.2D+W90
- LC5=1.2D+W120
- LC6=1.2D+W150
- LC7=1.2D-Wo
- LC8=1.2D-W30
- LC9=1.2D-W60
- LC10=1.2D-W90
- LC11=1.2D-W120
- LC12=1.2D-W150
- LC13=0.9D+Wo
- LC14=0.9D+W30
- LC15=0.9D+W60
- LC16=0.9D+W90
- LC17=0.9D+W120
- LC18=0.9D+W150
- LC19=0.9D-Wo
- LC20=0.9D-W30
- LC21=0.9D-W60
- LC22=0.9D-W90
- LC23=0.9D-W120
- LC24=0.9D-W150
- LC25=1.2D+Di+W10
- LC26=1.2D+Di+W130
- LC27=1.2D+Di+W160
- LC28=1.2D+Di+W190
- LC29=1.2D+Di+W120
- LC30=1.2D+Di+W1150
- LC31=1.2D+Di-W10
- LC32=1.2D+Di-W130
- LC33=1.2D+Di-W160
- LC34=1.2D+Di-W190
- LC35=1.2D+Di-W1120
- LC36=1.2D+Di-W1150
- LC38=1.2D+1.5LL1

LC39=1.2D+1.5LL2
 LC40=1.2D+1.5LL3
 LC41=1.2D+WL0+1.5LLa1
 LC42=1.2D+WL30+1.5LLa1
 LC43=1.2D+WL60+1.5LLa1
 LC44=1.2D+WL90+1.5LLa1
 LC45=1.2D+WL120+1.5LLa1
 LC46=1.2D+WL150+1.5LLa1
 LC47=1.2D-WL0+1.5LLa1
 LC48=1.2D-WL30+1.5LLa1
 LC49=1.2D-WL60+1.5LLa1
 LC50=1.2D-WL90+1.5LLa1
 LC51=1.2D-WL120+1.5LLa1
 LC52=1.2D-WL150+1.5LLa1
 LC53=1.2D+WL0+1.5LLa2
 LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3
 LC77=1.2D+WL0+1.5LLa4
 LC78=1.2D+WL30+1.5LLa4
 LC79=1.2D+WL60+1.5LLa4
 LC80=1.2D+WL90+1.5LLa4
 LC81=1.2D+WL120+1.5LLa4
 LC82=1.2D+WL150+1.5LLa4
 LC83=1.2D-WL0+1.5LLa4
 LC84=1.2D-WL30+1.5LLa4
 LC85=1.2D-WL60+1.5LLa4
 LC86=1.2D-WL90+1.5LLa4
 LC87=1.2D-WL120+1.5LLa4
 LC88=1.2D-WL150+1.5LLa4

Node	Forces						Moments						
		Fx	lc	Fy	lc	Fz	lc	Mx	lc	My	lc	Mz	lc
		[Kip]		[Kip]		[Kip]		[Kip*ft]		[Kip*ft]		[Kip*ft]	
1	Max	1.704	LC15	1.337	LC31	1.339	LC1	-0.73678	LC13	6.05931	LC4	0.38831	LC24
	Min	-1.710	LC9	0.430	LC13	-1.333	LC19	-5.34842	LC31	-6.05461	LC22	-1.77835	LC6
23	Max	0.661	LC7	0.093	LC13	0.535	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.656	LC13	-0.101	LC7	-0.541	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1

Date: 10/25/2019
Project Name: BRANFORD PINE ORCHAD RD
Project No.: CT1274
Designed By: LBW Checked By: MSC



CHECK LWRM MOUNT CAPACITY

Reference: SitePro1 P/N LWRM Mount Design Criteria

Allowable Normal Force =

$$F_{\text{naill}} = 5060 \text{ lbs.}$$

Allowable Tangential Force

$$F_{\text{tall}} = 3200 \text{ lbs.}$$

Normal Force Check

$$F_n = 1337 \text{ lbs.} < 5060 \text{ lbs.} \quad \text{Therefore, OK !}$$

Tangential Force Check

$$F_t = 1704 \text{ lbs.} < 3200 \text{ lbs.} \quad \text{Therefore, OK !}$$



HUDSON
Design Group LLC

Reference Documents



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Feb 22, 2010

**RE: ANSI/TIA-222-G Mount Capacity
Valmont / Site Pro 1 Mount: Ring Mount Assembly
Part No. LWRM**

The Ring Mount Assembly referenced above has been analyzed in accordance with ANSI/TIA-222-G-2005 standard using the following design criteria.

Mount Design Criteria

Structure Height	200'	
Basic Wind Speed	90 mph (3-sec)	
Structure Class	II	
Exposure Category	C	
Topographic Category	I	
Design Ice Thickness	1.0"	
Wind Direction Factor	0.95	Tubular Pole Structures, Lattice Structures with other than triangular, square or rectangular cross-sections, strength design of appurtenances
Gust Effect Factor	0.85	Guyed Masts & Self Supporting Lattice Structures 450' tall or less
	1.10	Tubular Pole Structures

Modeling & Applied Appurtenance Loading

The mount was analyzed for three (3) different loading scenarios. See page 2 for results.



Valmont Site Pro 1
2400 Walter Glaub Drive Plymouth, Indiana 46563-4005 USA
574-936-4221 Fax 574-936-8925 www.sitepro1.com



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Modeling & Applied Appurtenance Loading Scenario 1

The Ring Mount Assembly (LWRM) was analyzed with an evenly distributed load on each Ring Mount weldment (X-LWRM) with an **18" moment arm**. Based on the Design Criteria above, the maximum acceptable normal force is 5,060 lbs (159 sq ft) and the maximum acceptable tangential force is 3,200 lbs (100 sq ft) per weldment. The allowable applied weight (mount plus antenna) was considered to be a maximum of 1,700 lbs per weldment. Self-weight of the assembly was also considered.

Modeling & Applied Appurtenance Loading Scenario 2

The Ring Mount Assembly (LWRM) was analyzed with an evenly distributed load on each Ring Mount weldment (X-LWRM) with a **36" moment arm**. Based on the Design Criteria above, the maximum acceptable normal force is 2,530 lbs (79 sq ft) and the maximum acceptable tangential force is 1,600 (50 sq ft) lbs per weldment. The allowable applied weight (mount plus antenna) was considered to be a maximum of 860 lbs per weldment. Self-weight of the assembly was also considered.

Modeling & Applied Appurtenance Loading Scenario 3

The Ring Mount Assembly (LWRM) was analyzed with an evenly distributed load on each Ring Mount weldment (X-LWRM) with a **48" moment arm**. Based on the Design Criteria above, the maximum acceptable normal force is 1,900 lbs (59 sq ft) and the maximum acceptable tangential force is 1,200 lbs (37 sq ft) per weldment. The allowable applied weight (mount plus antenna) was considered to be a maximum of 650 lbs per weldment. Self-weight of the assembly was also considered.

Live load Rating:

The mount will also support a nominal load of 5,000 lbs at a position less than 6" from the mounting surface (climber anchorage or safety climb). **This condition assumes no wind without additional loading from mounts or antennas.**

This mount will also support a nominal load of 500 lbs located at two (2) locations simultaneously (500 lbs total) to provide access for climbers. **This condition assumes no wind, but does include the self weight of the mount, platform, and antennas.**

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the		
Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
$(EPA)_N$ (ft²)	0	
$(EPA)_T$ (ft²)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ϵ	0.000	solidity ratio = $(A_f + A_r)/A_g$

Effective Projected Area $(EPA)_A$ for Maximum Normal Reaction Load on Ring Mount Weldment (X-LWRM) with 18" Arm (sq ft)

WIND LOAD: 5.0600 kips

HEIGHT (ft)	BASIC WIND SPEED (mph)										
	70	75	80	85	90	95	100	105	110	115	120
40	369.8896	322.2149	283.1967	250.8594	223.7604	200.8265	181.2459	164.3954			
60	339.6255	295.8515	260.0258	230.3342	205.4525	184.3950	166.4165				
80	319.6667	278.4652	244.7448	216.7982	193.3786	173.5586					
100	304.9968	265.6861	233.5132	206.8490	184.5042	165.5938					
120	293.5118	255.6814	224.7200	199.0599	177.5565	159.3582					
140	284.1394	247.5170	217.5442	192.7035	171.8868						
160	276.2630	240.6557	211.5138	187.3617	167.1220						
180	269.4969	234.7617	206.3335	182.7730	163.0290						
200	263.5849	229.6117	201.8072	178.7635	159.4526						
220	258.3487	225.0504	197.7982	175.2123							

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the		
Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
(EPA)_N (ft²)	0	
(EPA)_T (ft²)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ε	0.000	solidity ratio = (A _r + A _f)/A _g

Effective Projected Area (EPA)_A for Maximum Tangential Reaction Load on Ring Mount Weldment (X-LWRM) with 18" Arm (sq ft)

WIND LOAD: 3.2000 kips

HEIGHT (ft)	BASIC WIND SPEED (mph)											
	70	75	80	85	90	95	100	105	110	115	120	
40	233.9223	203.7723	179.0967	158.6463	141.5085	127.0049	114.6219	103.9655				
60	214.7829	187.0998	164.4432	145.6659	129.9304	116.6134	105.2436					
80	202.1608	176.1045	154.7793	137.1056	122.2948	109.7604						
100	192.8834	168.0228	147.6763	130.8136	116.6825	104.7234						
120	185.6201	161.6957	142.1154	125.8877	112.2887	100.7799						
140	179.6929	156.5325	137.5774	121.8679	108.7031							
160	174.7118	152.1933	133.7637	118.4896	105.6898							
180	170.4328	148.4659	130.4876	115.5876	103.1013							
200	166.6940	145.2090	127.6251	113.0520	100.8396							
220	163.3826	142.3244	125.0898	110.8062								

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the		
Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
$(EPA)_N$ (ft^2)	0	
$(EPA)_T$ (ft^2)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ε	0.000	solidity ratio = $(A_f + A_r)/A_g$

Effective Projected Area $(EPA)_A$ for Maximum Allowable Normal Load on Ring Mount Weldment (X-LWRM) with 36" Arm (sq ft)											
WIND LOAD: 2.5300 kips											
HEIGHT (ft)	BASIC WIND SPEED (mph)										
	70	75	80	85	90	95	100	105	110	115	120
40	184.9448	161.1075	141.5984	125.4297	111.8802	100.4132	90.6230	82.1977			
60	169.8127	147.9258	130.0129	115.1671	102.7262	92.1975	83.2082				
80	159.8333	139.2326	122.3724	108.3991	96.6893	86.7793					
100	152.4984	132.8431	116.7566	103.4245	92.2521	82.7969					
120	146.7559	127.8407	112.3600	99.5299	88.7783	79.6791					
140	142.0697	123.7585	108.7721	96.3518	85.9434						
160	138.1315	120.3279	105.7569	93.6809	83.5610						
180	134.7484	117.3809	103.1668	91.3865	81.5145						
200	131.7925	114.8059	100.9036	89.3817	79.7263						
220	129.1744	112.5252	98.8991	87.6061							

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
$(EPA)_N$ (ft²)	0	
$(EPA)_T$ (ft²)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ϵ	0.000	solidity ratio = $(A_f + A_r)/A_g$

Effective Projected Area $(EPA)_A$ for Maximum Allowable Tangential Load on Ring Mount Weldment (X-LWRM) with 36" Arm (sq ft)

WIND LOAD: 1.6000 kips

HEIGHT (ft)	BASIC WIND SPEED (mph)											
	70	75	80	85	90	95	100	105	110	115	120	
40	116.9611	101.8861	89.5484	79.3231	70.7543	63.5024	57.3110	51.9827				
60	107.3915	93.5499	82.2216	72.8330	64.9652	58.3067	52.6218					
80	101.0804	88.0522	77.3897	68.5528	61.1474	54.8802						
100	96.4417	84.0114	73.8382	65.4068	58.3413	52.3617						
120	92.8101	80.8479	71.0577	62.9438	56.1444	50.3899						
140	89.8465	78.2662	68.7887	60.9339	54.3516							
160	87.3559	76.0967	66.8818	59.2448	52.8449							
180	85.2164	74.2330	65.2438	57.7938	51.5507							
200	83.3470	72.6045	63.8126	56.5260	50.4198							
220	81.6913	71.1622	62.5449	55.4031								

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the		
Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
(EPA)_N (ft²)	0	
(EPA)_T (ft²)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ε	0.000	solidity ratio = (A _f + A _r)/A _g

Effective Projected Area (EPA)_A for Maximum Allowable Normal Load on Ring Mount Weldment (X-LWRM) with 48" Arm (sq ft)

WIND LOAD: 1.9000 kips

HEIGHT (ft)	BASIC WIND SPEED (mph)										
	70	75	80	85	90	95	100	105	110	115	120
40	138.8914	120.9898	106.3387	94.1962	84.0207	75.4092	68.0568	61.7295			
60	127.5274	111.0905	97.6381	86.4891	77.1462	69.2392	62.4884				
80	120.0329	104.5620	91.9002	81.4064	72.6125	65.1702					
100	114.5245	99.7636	87.6828	77.6706	69.2802	62.1795					
120	110.2119	96.0068	84.3810	74.7458	66.6714	59.8381					
140	106.6927	92.9412	81.6866	72.3590	64.5425						
160	103.7351	90.3648	79.4222	70.3532	62.7533						
180	101.1945	88.1516	77.4770	68.6302	61.2164						
200	98.9746	86.2178	75.7774	67.1246	59.8735						
220	97.0084	84.5051	74.2721	65.7912							

GUST FACTOR BASED ON:	3	1. latticed tower, overall height = antenna height 2. latticed tower, overall height = 200 ft 3. monopole tower 4. Guyed Tower 5. Structure supported on other structures
Radial Ice Thickness:	1	inch
Structure Class:	2	See Worksheet "Structure Class" for Description
Exposure Category	C	See Worksheet "Exposure Category" for Description
Topography Category	1	See Worksheet "Topography Category" for Description
Height of Crest Above Surrounding Area, H	1	(ft) If 0 ft, use 1.0
Height Above Ground Level at the		
Base of the Structure, z	0	(ft)
Wind Direction, K_d	0.95	See Worksheet "Wind Direction" for Description
$(EPA)_N$ (ft²)	0	
$(EPA)_T$ (ft²)	0	See Worksheet "Wind Force on Appurtenances" for Description
θ	0	
K_a	1.00	
A_f	0	Projected area of flat structural components in one face of the section
A_r	0	Projected area of round structural components in one face of the section including the projected area of ice on flat and round structural components in one face for loading combinations that include ice.
A_g	25	Gross area of one face as if the face were solid, sqft.
ϵ	0.000	solidity ratio = $(A_f + A_r)/A_g$

Effective Projected Area $(EPA)_A$ for Maximum Allowable Tangential Load on Ring Mount Weldment (X-LWRM) with 48" Arm (sq ft)											
WIND LOAD: 1.2000 kips											
HEIGHT (ft)	BASIC WIND SPEED (mph)										
	70	75	80	85	90	95	100	105	110	115	120
40	87.7209	76.4146	67.1613	59.4923	53.0657	47.6268	42.9832	38.9870			
60	80.5436	70.1624	61.6662	54.6247	48.7239	43.7300	39.4664				
80	75.8103	66.0392	58.0422	51.4146	45.8605	41.1602					
100	72.3313	63.0086	55.3786	49.0551	43.7559	39.2713					
120	69.6075	60.6359	53.2933	47.2079	42.1083	37.7925					
140	67.3848	58.6997	51.5915	45.7004	40.7637						
160	65.5169	57.0725	50.1614	44.4336	39.6337						
180	63.9123	55.6747	48.9329	43.3454	38.6630						
200	62.5103	54.4534	47.8594	42.3945	37.8148						
220	61.2685	53.3716	46.9087	41.5523							